

## ABSTRACT

Disclosed are systems and methods which select multiple communication beams for simultaneous use such that potential scatters (e.g. reflectors) are not illuminated by simultaneous transmissions. Preferred embodiments of the present invention provide for maximizing aggregate throughput by continuously selecting the best subscriber station combination to be serviced simultaneously, such as based upon their spatial status and Quality of Service (QOS) metrics. Additionally or alternatively, embodiments of the present invention may facilitate demodulation reference using a system common pilot, training sequence, or other system signal.

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